AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An antenna system for measuring azimuth and elevation angles of an active, signal sending radiosonde (31), ~~which~~ the antenna system ~~comprises~~ comprising:

- a first passive antenna group (13) comprising at least two antenna arrays (11a, 11b), ~~the direction pattern of which is~~ having a direction pattern that is wide at least in an elevation plane, ~~for measuring~~

the first passive antenna group (13) being adapted to measure an azimuth angle of the radiosonde (31) based ~~on the~~ on phase differences between the antenna arrays (11a, 11b), and ~~the rotational position~~ based on a direction of the antenna field (1),

- a second passive antenna group (12) comprising at least two antenna arrays (10a, 10b)~~, the direction pattern of which is~~ having a direction pattern that is wide at least in the elevation plane, ~~for measuring~~

the second passive antenna group (12) being adapted to measure the elevation angle of the radiosonde (31) based ~~on the~~ on phase differences between the antenna arrays (10a, 10b), and

- at least one third antenna element (8) having high gain ~~for receiving the~~ adapted to receive a telemetry signal, ~~the direction pattern of which~~ a direction pattern of the at least one third antenna element (8) ~~is narrow~~ being narrow in an azimuth plane and wide in the elevation plane,

~~characterized in that~~ wherein

- the first (13) and second (12) antenna groups form a solid antenna field (1), and

- the antenna field (1) is fixedly tilted in a predetermined elevation position,

wherein one of the at least two antenna arrays of (11a, 11b) of the first passive antenna group (13) is disposed directly facing each of right and left lateral sides of one of the at least two antenna arrays (10b) of the second passive antenna group (12).

2. (Currently Amended) The antenna system of claim 1, ~~characterized in that~~ wherein the third antenna element (8) belongs to the antenna field (1).

3. (Currently Amended) The antenna system of claim 1, ~~characterized in that~~ wherein the antenna field is essentially planar.

4. (Currently Amended) The antenna system of claim 1, ~~characterized in that the~~ wherein a gain pattern minimum (35) (null) of each of the antenna ~~array~~ arrays (10a, 10b, 11a, 11b) is aligned ~~to the~~ to a direction ~~of the~~ of a ground reflection (30).

5. (Currently Amended) The antenna system according to claim 1, ~~characterized in that~~ wherein the antenna system comprises means for rotating the antenna field (1) around a vertical axis (7) approximately ~~to the~~ to a direction of the radiosonde (31) while the elevation angle remains essentially constant.

6. (Currently Amended) The antenna system according to claim 1, ~~characterized in that~~ wherein reception of the ~~radiosonde (31)~~ telemetry ~~reception~~ signal from the radiosonde (31) is independent of the azimuth and the elevation measurements.

7. (Currently Amended) The antenna system according to claim 1, ~~characterized in that~~ wherein the antenna field (14) is fixed in an elevation and an azimuth direction, ~~and that~~ and the ~~system~~ antenna field (14) comprises at least three antenna fields (14) pointing to different azimuth directions.

8. (Currently Amended) The antenna system of claim 7, ~~characterized in that the~~ wherein a gain pattern minimum (null) of each of the antenna ~~array~~ arrays (17a, 17b, 18a, 18b) is aligned ~~to the~~ to a direction ~~of the~~ of a ground reflection.

9. (Currently Amended) The antenna system of claim 7, ~~characterized in that~~ wherein ~~radiosonde~~ reception of the telemetry ~~reception (15)~~ signal from the radiosonde (31) is independent of the azimuth and the elevation measurements.

10. (Currently Amended) The antenna system according to claim 1, ~~characterized in that~~ wherein the antenna field (1) is fixedly tilted backwards.

11. (Currently Amended) The antenna system according to claim 1, ~~characterized in that~~ wherein the antenna field (1) forms an inverted letter T.

12. (Currently Amended) A method for measuring azimuth and elevation angles of an active, signal sending radiosonde (31), ~~in which~~ method comprising:

- providing a first passive antenna group (13) comprising at least two antenna arrays (11a, 11b) having a direction pattern that is wide at least in an elevation plane,

- measuring the azimuth angle of the radiosonde (31) ~~is measured~~ based ~~on the~~ on phase differences ~~of the~~ of received radiosonde signals between the at least two antenna arrays (11a, 11b) and ~~the rotational position of the~~ based on a direction of an antenna field (1), ~~with a first passive antenna group (13) comprising at least two antenna arrays (11a, 11b), the direction pattern of which is wide at least in elevation plane~~,

- providing a second passive antenna group (12) comprising at least two antenna arrays (10a, 10b) having a direction pattern that is wide at least in the elevation plane,

- measuring the elevation angle of the radiosonde (31) ~~is measured~~ based ~~on the~~ on phase differences of the received radiosonde signals between the at least two antenna arrays (10a, 10b), ~~with a second passive antenna group (12) comprising at least two antenna arrays (10a, 10b), the direction pattern of which is wide at least in elevation plane~~, and

- ~~the telemetry~~ receiving a telemetry signal ~~is received~~ with at least one third antenna element (8) having high gain, ~~the direction pattern of which~~ a direction pattern of the third element (8) ~~is narrow~~ being narrow in an azimuth plane and wide in the elevation plane,

~~characterized in that~~ wherein

- the first (13) and second (12) antenna groups form a solid antenna field (1), and

- the antenna field (1) is fixedly tilted in a predetermined elevation position,

wherein one of the at least two antenna arrays of (11a, 11b) of the first passive antenna group (13) is disposed directly facing each of right and left lateral sides of one of the at least two antenna arrays (10b) of the second passive antenna group (12).

13. (Currently Amended) The method of claim 12, ~~characterized in that~~ wherein the third antenna element (8) belongs to the antenna field (1).

14. (Currently Amended) The method according to claim 12, ~~characterized in that the~~ further comprising:

aligning a gain pattern minimum (null) of each of the antenna ~~array~~ arrays (17a, 17b, 18a, 18b) ~~is aligned to the~~ to a direction ~~of the~~ of a ground reflection.

15. (Currently Amended) The method according to claim 12, ~~characterized in that radiosonde~~ further comprising:

receiving the telemetry ~~reception is independent~~ signal independently of the azimuth and the elevation measurements.

16. (Currently Amended) The method according to claim 12, ~~characterized in that~~ further comprising:

rotating the antenna system ~~is rotated~~ around a vertical axis (7) approximately ~~to the~~ to a direction of the radiosonde (31) while the elevation angle remains essentially constant.

17. (Currently Amended) The method according to claim 12, ~~characterized in that~~ further comprising:

fixedly tilting the antenna field (1) ~~is fixedly tilted~~ backwards.

18. (Currently Amended) The method according to claim 12, ~~characterized in that~~ further comprising:

fixing the antenna field (14) ~~is fixed~~ in an elevation and an azimuth direction, ~~and that~~ wherein the ~~system~~ antenna field (14) comprises at least three antenna fields (14) pointing to different azimuth directions.

19. (Currently Amended) The method according to claim 18, ~~characterized in that~~ ~~the~~ further comprising:

aligning a gain pattern minimum (null) of each of the antenna ~~array~~ arrays (17a, 17b, 18a, 18b) ~~is aligned to the~~ to a direction ~~of the~~ of a ground reflection.

20. (Currently Amended) The method according to claim 18, ~~characterized in that radiosonde~~ further comprising:

receiving the telemetry ~~reception (15) is independent~~ signal independently of the azimuth and the elevation measurements.

21. (New) The antenna system according to claim 1, wherein each of the at least two antenna arrays (10a, 10b) and the third antenna element (8) is arranged in a straight line that is tilted with respect to a vertical axis (7).

22. (New) The antenna system according to claim 1, wherein the antenna field (14) is fixed in an elevation and an azimuth direction, and the antenna field (14) comprises four antenna fields (14) pointing to different azimuth directions.

23. (New) The method of claim 12, wherein each of the at least two antenna arrays (10a, 10b) and the third antenna element (8) is arranged in a straight line that is tilted with respect to a vertical axis (7).

24. (New) The method of claim 12, wherein the antenna field (14) is fixed in an elevation and an azimuth direction, and the antenna field (14) comprises four antenna fields (14) pointing to different azimuth directions.